

JOINT FIRE SUPPORT: HOW TO ACHIEVE UNITY OF EFFORT

A Monograph
by
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Armor



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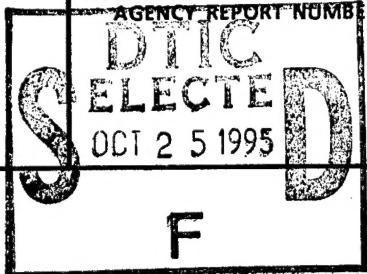
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ABSTRACT

JOINT FIRE SUPPORT; HOW TO ACHIEVE UNITY OF EFFORT
by LTC Gregory M. Eckert, USA, 62 pages

The Gulf War provided a glimpse of the possibility for the simultaneous tactical, operational and strategic paralysis of the enemy. Technology coupled with sheer numbers gave the joint force commander the ability to pursue multiple objectives simultaneously to defeat the enemy's center of gravity and accomplish the theater campaign's military objectives. The Gulf War also reinforced the fact that single services no longer conduct war without the support and or proper integration of other services. That the full potential of the U. S. led coalition was not realized is due in part to a lack of unity of effort between the Army and Air Force in the planning and execution of joint fire support.

Following the Gulf War, Joint Pub 3-0 Doctrine for Joint Operations was published. This keystone manual introduced the concept of joint fire support. The emergence of joint fire support doctrine is directly linked to the ongoing debate between the Army and Air Force on the prosecution of the deep battle. At its heart, this disagreement represents a significantly different view of how these services see their relationship in planning and conducting joint operations in a campaign.

Competition for shrinking resources, along with the Roles and Missions Commission examination of the deep battle, have heightened the disagreement between the services and distorted the issues. As a result, the debate has tended to overemphasize *who* conducts joint fire support at the expense of examining what the key principles are in *how* to plan and execute joint fire support in a theater campaign.

This monograph examines the Gulf War and emerging joint and service doctrine to identify the key principles a campaign planner needs to ensure unity of effort in planning and executing joint fire support. It does not provide a list of tactics, techniques and procedures. These are addressed in joint and service doctrine. The scope is limited to U. S. Army and Air Force issues. Naval and Marine forces and combined operation considerations are not addressed.

The monograph is organized in five sections. The first is the introduction. The second is the problem background. The third section identifies why the U. S. Air Force, Third U. S. Army and VII Corps did not achieve a unity of effort in joint fire support during the Gulf War. The fourth section examines the emerging U. S. Air Force, Army and joint fire support doctrine following the Gulf War. The fifth section concludes by noting that Joint Pub 3-0 adequately addresses the key principles needed to ensure unity of effort in joint fire support.

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I. INTRODUCTION

The Gulf War provided a glimpse of the possibility for the simultaneous tactical, operational and strategic paralysis of the enemy. Technology coupled with sheer numbers gave the joint force commander (JFC) the ability to pursue multiple objectives simultaneously to defeat the enemy's centers of gravity and accomplish the theater campaign's military objectives. The Gulf War also reinforced the fact that single services no longer conduct war without the support and or proper integration of other services. This is reflected in Joint Pub 1 which notes, "Campaigns of the U.S. Armed Forces are joint; they serve as the unifying focus for our conduct of warfare." ¹ That the full potential of the U. S. led coalition was not realized is due in part to an apparent lack of unity of effort between the Army and Air Force.

TRADOC Pam 525-5, the Army's evolving vision of future joint military operations, has reinforced the need for this unity of effort by noting that future success on the joint battlefield will require

... an absolute unity of effort among all arms and service components... In essence, the joint force commander will have to both optimize and synchronize the capabilities of each service to effectively execute depth and simultaneous attack. This will require a reexamination of the current joint fire support coordination paradigm. ²

Following the Gulf War, and in recognition of the increasingly joint nature of warfare, in the early 1990s there was a significant growth in the number and variety of joint doctrinal publications. On 9 September, 1993, the Chairman, Joint Chiefs of Staff, signed Joint Pub 3-0, Doctrine for Joint Operations, the keystone manual on how U. S. armed forces plan and conduct future joint operations. Among the key concepts introduced in the manual is joint fire support. Joint Pub 3-0 defines joint fire support as, "... those fires that assist land and amphibious forces to maneuver and control territory, populations, and key waters." ³ Joint doctrine for this emerging concept is contained in Joint Pub 3-09, Doctrine for Joint Fire Support (for which the

Army is the executive agent). The emergence of joint fire support doctrine is linked directly to an ongoing debate between the Army and Air Force on the prosecution of the deep battle. There is no approved joint or service definition of deep battle, however, it is generally considered to be that area of shared interest between the Army and Air Force lying between the fire support coordination line (FSCL) and the army forward boundary.⁴

This debate, which surfaced during the Gulf War, has continued. At its heart, this disagreement represents a significantly different view of how the Army and Air Force see their relationship in planning and conducting joint fire support. This is reflected by the Air Force, the executive agent for Joint Pub 3-03 Joint Interdiction, nonconcurring with Joint Pub 3-09, and the Army nonconcurring with Joint Pub 3-03.

Competition for shrinking resources, along with the Roles and Missions Commission's examination of the role each service should have in conducting the deep battle, have heightened the disagreement between the services. This has resulted in a tone of advocacy in articles, publications and even doctrine, focusing on the perceived importance of one service over another, or the relative value of a particular weapon system. As a consequence, the debate has tended to overemphasize *who* conducts joint fire support at the expense of examining what the key principles are in *how* to plan and execute joint fire support in a theater campaign.

This monograph examines the Gulf War and emerging joint and service doctrine to identify the key principles a campaign planner needs to ensure unity of effort in planning and executing joint fire support. It is not intended to provide a list of tactics, techniques and procedures for joint fire support planning. These are addressed in joint and service doctrine. The scope is limited to U. S. Army and Air Forces. Naval and Marine forces and combined operation considerations are not addressed.

The monograph is organized in five sections. The first is the introduction. The second section is the problem background. The third section identifies why the U.S. Air Force, the Third U.S. Army and VII Corps did not achieve unity of effort in joint fire support during the Gulf War. The fourth section examines the emerging U.S. Army, Air Force and joint fire support doctrine following the Gulf War. The fifth section concludes by noting that Joint Pub 3-0 adequately addresses the key principles needed to ensure a unity of effort in joint fire support.

II. BACKGROUND

Two trends have defined the current Army and Air Force joint fire support debate: the emergence of a modern concept for air and land warfare that emphasizes the deep battle, and the development of new technologies that provide the capability to see and attack deep targets with missiles and or manned aircraft.

In the mid 1970s, the Army found itself faced with the formidable task of defeating a numerically superior Warsaw Pact armored force in the defense of Central Europe. The consequent revision of Army doctrine occurred in response to several factors. One was the new lethality seen in the 1973 Arab-Israeli War. Another was the increased dialogue between the Army's Training and Doctrine Command (TRADOC) and the Air Force's Tactical Air Command. Still another was the Army's desire to enlarge the scope of operations in its current doctrine from division, to corps and theater level. Concurrent with these developments, technologies in smart munitions emerged which would assist both services in dealing with this massed armor threat.⁵ The result was the 1982 version of FM 100-5.

This version of FM 100-5 represented the emergence of a modern land warfare doctrine for the U. S. The manual introduced the operational level of war and the importance of integrating the air and land battles both in the close and deep

fight. One result was a joint Army and Air Force initiative which focused on the interdiction of second echelon deep targets, also known as follow-on-force attack (FOFA). While both services agreed in principle on the new AirLand Battle doctrine, there was debate regarding the division of responsibility and control over targets in the deep battle area. This was symptomatic of a deeper debate emerging between the two services on the proper relationship needed to conduct joint operations in a campaign.

The Air Force was increasingly uncomfortable with the Army's vision of the deep battle. The Air Force disliked the notion that its value was ultimately measured in how successfully it contributed to the Army's land operations. This was captured intellectually in 1988, in Col John Warden's book, The Air Campaign, which argued among other things, that air superiority was essential in winning a war and "that in many circumstances it alone (the air campaign) can win a war..."⁶ The opportunity to test Col Warden's theories presented itself in the skies over Saudi Arabia, Kuwait and Iraq with the execution of a successful and largely independent air campaign. At the same time, the emergence of other technologies including JSTARS, the AH-64 and ATACMS, provided the Army a capability which it argued no longer gave the Air Force a monopoly on prosecuting the deep battle.

Then, following the Gulf War, and consistent with the growing importance of the unified commands as the nation's warfighters, a tremendous growth in joint doctrine occurred. This coincided with the largest downsizing of the armed forces of the United States since the Vietnam war and the concomitant reduction in resources for all services. Among the results was increased competition among the services for these resources, heightened by the Roles and Missions Commission examination of the proper role for the Army and Air Force in prosecuting the deep battle. The ongoing debate between the Army and Air Force over the planning and execution of joint fire support is an outgrowth of this.

III. The GULF WAR

Before dawn on 2 August, 1990, Iraq invaded Kuwait. Over the next five and one-half months, the U.S. and coalition forces deployed an enormous number of forces into the Arabian Peninsula, initially to deter further Iraqi aggression and subsequently to prepare for offensive action. On 17 January, 1991, a massive and largely independent air campaign, led by the U.S. Air Force, began. This ended on 24 February with a four day joint and combined ground offensive, led by U.S. Army and Marine forces, that successfully ejected Iraqi forces from Kuwait and substantively destroyed Iraq's conventional offensive military capability.

Shortly after Iraq invaded Kuwait, a group of Air Staff officers in the Pentagon known as Checkmate and headed by Col John A. Warden III began developing an air campaign plan. This plan, known as Instant Thunder, was briefed to General Schwarzkopf, U. S. Commander in Chief, Central Command (USCINCCENT), on 10 August and General Powell on 11 August.⁷

Lt Gen Horner, the U. S. Air Forces Central Command (CENTAF) commander, and at the time serving as the commander, CENTCOM forward , was also appointed by GEN Schwarzkopf, as the first wartime joint force air component commander (JFACC). He received his role and responsibilities as the JFACC directly from the CINC.

JFACC responsibilities include... Planning, coordination, allocating and tasking based on USCINCCENT apportionment decisions... Direct coordination with COMUSARCENT, COMUSMARCENT, COMSOCENT, COMJTFME and supporting forces to ensure integration of air operations within USCINCCENT's Concept of Operations...⁸

Lt Gen Horner felt that Instant Thunder focused too much on strategic targets and inadequately addressed Iraqi forces in the Kuwait Theater of Operations (KTO). To fix this problem and gain more control of the air planning effort, he established an ad hoc planning cell in Riyadh. He assigned Brig Gen Buster Glosson

as CENTAF director of campaign plans, to develop a more comprehensive and detailed offensive air campaign. This cell was known as the Black Hole. The product of the Black Hole's initial efforts was a four phased and largely sequential campaign plan. This was briefed on 25 August, 1991 to General Powell by General Schwarzkopf. The first phase was essentially the strategic air campaign in Instant Thunder. The second phase was designed to achieve air superiority in the theater of operations. The third phase was the battlefield preparation phase designed to prepare the KTO for a ground offensive. The fourth phase was the ground offensive, the one phase which at that time had received almost no attention.⁹

Although the air campaign addressed the preparation for and support of a ground offensive, at least in the mind of Brig Gen Glosson, the head of CENTAF's Black Hole targeting cell, it had the potential to win the war without the need for a ground offensive.

I think it's accurate to portray the history of the Air Force as one in which it has always been in support of either the ground forces, the sea forces, or the Marines... We're being asked to meet Presidential established objectives solely with the use of air power. Now there are a lot of critics that say that can't be done. I don't happen to be one of those individuals. I believe, with the objectives that the President has laid down, if we execute this air campaign and the leadership has the patience, he will realize all the objectives that he's established... the only thing you have to do is have the **patience to wait out the effect of what you've already accomplished.**¹⁰

This view was not shared by all the senior Airmen in the Gulf. After the war Lt Gen Horner noted,

Would Schwarzkopf have been happy if the Iraqis would have backed off with the air campaign, without a ground invasion being necessary? Why I think so. But, I don't think that... Only the airpower airheads talk about no need for ground forces and all that bullshit."¹¹

On 8 August, 1990 in a nationally televised speech, President Bush outlined U. S. objectives in the region as: (1) secure the immediate, unconditional and complete withdrawal of Iraqi forces from Kuwait, (2) restore the legitimate

government of Kuwait, (3) assure the security and stability of the Persian Gulf region, and (4) protect American lives.¹² From these objectives, CENTCOM derived six military objectives needed to accomplish the theater campaign: (1) attack Iraqi political/military leadership and command and control, (2) gain and maintain air superiority, (3) sever Iraqi supply lines, (4) destroy chemical, biological, and nuclear capability, (5) destroy Republican Guard Forces, (6) liberate Kuwait city. It also identified three "centers of gravity": (1) Iraqi national command authority, (2) Iraq's chemical, biological, and nuclear capability, (3) the Republican Guard.¹³

Planning in earnest for the ground offensive began in mid September with the arrival of another ad hoc planning cell of four graduates of the Army's School of Advanced Military Studies. This was a response to increasing pressure by the NCA to develop some type of ground offensive to go along with the already approved offensive air campaign. The group's initial charter, which was to be modified frequently, was to plan the ground offensive. Over the next three months, largely through a combination of trial and error, and reconnaissance by fire, a ground offensive emerged. This plan envisioned an aggregate 50% reduction of Iraqi forces in the KTO by coalition air forces followed by a ground attack.¹⁴ The ground attack was based on two U. S. corps, attacking west of the Iraq and Kuwait border, to close with and destroy the Republican Guards (one of the three identified centers of gravity) and complete the ejection of Iraqi forces from Kuwait. GEN Schwarzkopf continued to emphasize the criticality of physically destroying the Republican Guards as the centerpiece of the ground offensive.¹⁵

The air and ground planning cells were physically separated. This resulted in infrequent and informal coordination between the two planning efforts. Coordination was further limited by the constraints placed on both cells in working with others in the CENTCOM staff and subordinate commands resulting from GEN Schwarzkopf's concerns over secrecy.

Development of the ground offensive was complicated by several other factors. The CENTCOM staff, along with the Third Army, the headquarters for U. S. Army forces Central Command (ARCENT), was almost totally consumed with the deployment , reception and onward movement of U. S. and coalition forces into the theater of operation, and the establishment of a coherent combined defense of Saudi Arabia. The CENTCOM staff, and to a greater degree the Third Army staff, was also significantly undermanned. Finally, VII corps, which was to be the Third Army's main effort, did not get brought into the planning process in earnest until November. As a result, the ground offensive planning effort was a parallel one among the CENTCOM, Third Army and corps headquarters, and did not begin to mature until December.¹⁶

The coordination between the air campaign and subsequent ground offensive continued to be largely informal. The sequential four phased air campaign, the 50 % attrition during the battlefield preparation, and destruction of the Republican Guard, at times appeared to be the only real common threads between the two. As events were to prove, this was inadequate to the task of establishing a true unity of effort among the CENTCOM, Army and Air Force planning staffs, and their respective commanders. This further complicated a divergence in views between the senior U. S. Army and Air Force leadership in the KTO over the issue of joint fire support for the ground offensive.¹⁷

This divergence in views was highlighted in a ARCENT MAPEX in early December. Here, senior army leaders felt Brig Gen Glosson was a little too glib and imprecise about the Air Force's ability to achieve a 50% attrition of Iraqi forces prior to the ground offensive.¹⁸ This was a precursor to a difference in views between the two services over the Air Force's role in shaping the battlefield for the Army during the battlefield preparation phase. Concerns of senior U.S. ground commanders revolved around their ability to successfully breach Iraqi lines, reduce casualties, and maneuver quickly to a position to close with and destroy the

Republican Guard. This was to prove to be not wholly consistent with the Air Force and even the CINC's views on the appropriate means to defeat the Republican Guard.

During the period from September through December, the CENTAF targeting process also evolved. Offensive target list development was dominated by former members of the CENTAF Black Hole who were absorbed into CENTAF's Tactical Air Control Center (TACC) as the Guidance, Apportionment, Targeting Cell. Brig Gen Glosson, the newly appointed 14th Air Division (Provisional) Commander (fighters), centrally controlled the cell's planning and execution. All services and the coalition were represented in the TACC, however, the overwhelming percentage of the targeting staff was Air Force, including the heads of the KTO cell , Iraq cell, and ADA cell, as well as day and night shift leaders. Thus, this was not a true joint targeting cell.¹⁹ This targeting cell was separate from the one in CENTCOM that had developed its own targeting list. This was not a major problem for the first 72 hours of the offensive since the air effort was almost exclusively focused on strategic targets. However, as the air campaign became more intense and complex, the interaction between these two groups became more difficult.²⁰

The master target list developed by CENTAF during this period grew from 84 targets in August, 1990 to about 350 in January, 1991, divided into 12 target categories. These categories included: strategic air defense, chemical, biological and nuclear facilities, leadership, command, control and communication sites, electric power, oil facilities, railroads and bridges, airfields, naval ports and facilities, military support facilities, Scud facilities, and Republican Guards. By the end of the war this list was to grow to over 700 targets. This did not include those targets submitted by ground commanders as part of their battlefield preparation. CENTAF kept these as a separate group.²¹

On the 16th of January, while the Third Army continued to refine its ground offensive plan, deploy forces into the theater, move them into attack positions, and

build up logistics for its offensive, the air campaign began. Initial efforts against many of the strategic targets in Phases I and II were extremely successful. Problems began to surface, however, with the effects being achieved against the Iraqi Army in the KTO in general and Republican Guard in particular.

Air superiority was achieved almost immediately and GEN Schwarzkopf was able to claim air supremacy by the 27th of January.²² This encouraged the Iraqis to keep their heads down while the coalition ground forces repositioned. Remaining air sorties focused on the core strategic target categories of leadership and telecommunications, command, control and communications, electricity, oil refineries, nuclear, biological and chemical warfare capabilities, and Scuds. The category of military support facilities was largely subsumed in these categories. The intent was to simultaneously exert pressure throughout the enemy's operational and strategic depths.

As Keaney and Cohen note in the Gulf War Airpower Survey,²³ the effectiveness of the strategic air campaign was a mixed bag. By 1992, the UN inspection team had destroyed more of Iraq's nuclear production capability than had the air campaign. While the Scud effort certainly harassed Iraq, few of the mobile launchers were actually destroyed.²⁴ Strikes against Iraqi oil refining capability were highly effective, while those against their storage capacity achieved more modest results. Attacks against Iraq's power grid rapidly shut down generation and distribution of commercial power throughout Iraq. Almost 88% of Iraq's generation capability was damaged or destroyed. Whether this was overkill continues to be debated. Finally, the effectiveness of attacks against telecommunication, leadership, and command, control and communication is difficult to assess. While not destroying Iraq's central nervous system, shattering Saddam Hussein's Ba'athist regime, and severing communications between the regime and its military forces in the KTO, these attacks certainly disrupted it and caused significant dislocation and some loss of

efficiency in Iraq's ability to conduct military operations in the KTO once the ground offensive began.²⁵

The air interdiction effort was designed to stop the movement of Iraqi forces both into, and of greater importance once the war started, out of the KTO. Air interdiction was also aimed at cutting the flow of supplies into the KTO. As Lt Gen Horner noted, the campaign against Iraq's transportation system looked "deceivingly easy... but proved a tough nut to crack" based on their industriousness and ingenuity in repair.²⁶ While 75 % of the bridges into the KTO were either destroyed or damaged, work arounds mitigated these effects and the complete isolation of the KTO was not accomplished. The flow of supplies was reduced but not severed. As Keaney and Cohen point out, the limited requirements imposed by the inert Iraqi army in the KTO and their countermeasures also reduced demands on the transportation infrastructure prior to the ground offensive. Evidence does suggest, however, that once the ground offensive occurred, the interdiction campaign would have had a telling effect on Iraqi forces in the KTO, particularly with POL and ammunition resupply, had the war not ended so abruptly.²⁷

In the opening weeks of the air campaign, the attrition of Iraqi forces in the KTO, particularly the Republican Guard, began to fall behind anticipated results. This served to heighten increasing tension between the Army and Air Force. The main reasons were poor weather, lower than anticipated sortie rates against Iraqi ground forces, and poorer bombing accuracy than anticipated from attacking at higher altitudes with dumb bombs. This was exacerbated when discrepancies emerged among CENTAF, DIA, CENTCOM, and ARCENT regarding what affects were actually being achieved. At the outset, the CINC made ARCENT and MARCENT responsible for assessing BDA in their areas. Not surprisingly, ARCENT BDA was more modest than CENTAF's, based in large measure on the rules used to assess tank, APC, and artillery kills. While CENTAF used a system

which encompassed pilot mission reports, the CENTCOM J-2 and ARCENT used another. DIA used still another.²⁸

In response to lower than anticipated attrition of Iraqi forces in the KTO, CENTAF made several changes. First, in early February, air supremacy allowed CENTAF to start a "tank plinking" campaign. As a result aircraft began flying lower and using a technique of armed recce. In addition, 15 nautical mile square kill boxes were created. From these kill boxes, aircraft were able to attack targets based on both the ATO and also lucrative targets of opportunity. This increased attrition against Iraqi forces in the KTO including the Republican Guard. Effectiveness also improved as pilots gained more experience.²⁹

Even with this increase in effectiveness, at the end of January, GEN Schwarzkopf, correctly perceiving that there was a divergence of view between the Army and Air Force over their role in the ground offensive, felt it necessary to refocus CENTAF's priorities.

Target development and nomination during the early phases of the campaign were clearly led by the ...JFACC. As we move into battlefield preparation, maneuver commander input into the target selection process becomes even more important. Therefore, the opportunity for corps and other subordinate commanders to plan for and receive air sorties to fly against targets of their choosing must increase.³⁰

Despite this renewed effort on battlefield preparation, and the continued attempt to isolate the KTO, Army commanders were increasingly frustrated in early February over a perceived lack of emphasis by the Air Force in properly supporting them. The overall ARCENT ground offensive was based on a deep envelopment of Iraqi forces in the west, followed by the rapid closure and destruction of the Republican Guard. As Swain, correctly notes in his book "Lucky War" Third Army in Desert Storm,³¹ ground commanders did not know when the ground war would start and they believed about nine days would be needed to prepare the close

battlefield adequately, including the breach sights, enemy artillery, command and control, and tactical reserves. This would allow a quick penetration of the tactical front lines and the rapid closure on the Republican Guard. They also were concerned about their ability to influence the CINC, given his mercurial temper and dislike of subordinates intruding in his plan.³²

This view of the Air Force's role in shaping the battlefield was not completely consistent with the CINC's. As Col Lewis, a member of the Black Hole targeting effort, notes, despite the corps commanders' concerns over not getting enough front line sorties, GEN Schwarzkopf continued to be concerned about the Republican Guard and directed Brig Gen Glosson to not go after enemy front line artillery until 3-4 days prior to the ground offensive for fear of it being replaced.³³ Thus, over four months after the offensive planning effort had begun, and two weeks into the air campaign, the CINC still felt it necessary to be personally involved with the day to day details of CENTAF's targeting efforts. Arguably, the fact that he was the defacto joint force land component commander (JFLCC), coupled with his personality, might have demanded it anyway.

LTG Franks, the VII Corps commander, reflected the senior army commanders' frustration over the status of the battlefield preparation when he noted after the war,

I had no argument with the amount of air in there. That was somebody else's decision. But what it did when it was in there, seems to me, had to be part of the total maneuver scheme of a five division, 146,000 soldier corps. We had to complement one another, and that's what frustrated me. Eventually because of the amount of air, we got it all done.³⁴

Interestingly, despite concern about working with the Air Force to shape the battlefield, ARCENT was unable to form a deep battle cell until just days prior to the start of the air war.³⁵ While this probably resulted more from a lack of manpower than a lack of desire, it further complicated an already existing problem. Swain also

notes that Yeosock took a more cumulative versus sequential view than his corps commanders of battlefield preparation. He also had a broader perspective than his corps commanders who were much closer to the problems attendant to an inadequate preparation of the battlefield.³⁶

ARCENT's concerns were echoed by LTG Waller, the DCINC, after the war when he stated that he was increasingly concerned about air apportionment and felt he needed to get a stronger handle on Brig Gen Glosson to prevent him from diverting sorties from battlefield preparation to strategic targets. In the DCINC's opinion, some of the air planners were trying hard to win the war without a ground attack and insufficient attention was being paid to the near battlefield preparation in support of the ground offensive.³⁷ As a result, the DCINC became involved with a portion of CENTCOM's targeting process during the air campaign's battlefield preparation phase.

This process was formalized on about the 7th of February. At about 1200 the DCINC would start his review of the targets nominated from ARCENT and other ground components. At 1800 the DCINC would pass the target list to Lt Gen Horner and would then brief the CINC at the 1900 evening brief (strikes now being about 34 hours away). Lt Gen Horner would then allocate these sorties against the DCINC's list and incorporate them in the ATO. Brig Gen Glosson would then brief the CINC on strategic targets and total sorties by aircraft allocated against each Iraqi division in the KTO for the next two days. "...he typically would make adjustments".³⁸

Lt Gen Horner was adamant that this was not a true precursor to the joint target coordination board (JTCB) (this will be discussed in the following section on doctrine). He correctly points out that LTG Waller focused exclusively on Iraqi targets in the KTO in front of the fire support coordination line (FSCL) and did not get involved with any other targeting or apportionment decisions. Even with this adjustment to the target nomination process, Lt Gen Horner noted that the army

corps commanders and ARCENT still continued to complain that the Air Force was not hitting the targets they were nominating.

Well, that was true for a couple of reasons. One, some of the targets were not valid. Two, some of the targets were valid but Schwarzkopf would change the tasking at the nightly briefs. Finally, some of the targets were being struck as requested. It was a mixed bag.³⁹

A VII Corps air liaison officer noted what he believed were some of VII Corps' targeting problems. Each target appeared to receive some measure of merit whether it was a division CP or a single SA-9. There was no revalidation criteria set to remove dated mobile targets. The corps did not attempt to correlate and remove targets reported destroyed by the Air Force, especially when coordinates did not agree with the corps data base.⁴⁰ Col Lewis cited one instance in mid February when VII Corps got only 6 of 42 targets nominated into the ATO. Of the 36 not in the ATO, 14 were 2-3 days old and awaiting BDA from previous strikes; 13 were outdated (some a month old); and 9 were infantry targets which did not fall in the CINC's criteria due to the infantry being in trenches and widely dispersed.⁴¹

CENTAF was not the only headquarters who disapproved corps target nominations. LTG Yeosock also disapproved several corps targets for similar reasons.⁴² In other instances, the CINC disapproved target nominations for front line Iraqi divisions since his assessment showed them at less than 50% and he would not allow those divisions at less than 50% to be attacked.⁴³ Thus, even when another ad hoc arrangement was established to apply more rigor and consistency to the joint targeting process, the CINC still felt compelled to get personally involved.

There was also continuing disagreement over which targets to attack. While CENTAF increased their emphasis on "tank plinking" in early February, the VII Corps commander, in particular, wanted more artillery hit. This also contributed to a lack of unity of effort and the absence of a common vision for the joint fire support plan. Even in those instances when critical targets nominated by VII corps were

struck, the lack of a responsive and mature targeting system within CENTCOM, CENTAF and ARCENT still caused problems.

As the ground offensive approached, VII Corps wanted increased emphasis placed on the Iraqi 47th and 26th IDs through whom they would have to effect their breach and initial penetration. On the 22d of February, Brig Gen Glosson convinced GEN Schwarzkopf to go after a high concentration of artillery (over 200 versus the normal 72 pieces). After the start of the ground offensive, over 100 pieces were determined to have been destroyed or damaged, however, at G-day ARCENT showed the divisions at 52% versus 34% for overall effectiveness. In another instance, ARCENT believed the 26th ID to have 72 artillery pieces, however, at least 18 pieces were destroyed prior to ARCENT's request. CENTAF launched 40 F-16s and could not find any artillery. After G-day, ARCENT revised its count to only 18 pieces in the 26th ID when the ground offensive was initiated making the 26th's strength closer to 40% rather than ARCENT's 70% estimate.⁴⁴

Despite discrepancies in what and how much was attacked during the battlefield preparation, analysis after the war indicates that while CENTAF did not achieve all they were asked to, their accomplishments were significant. During the period 17 January - 28 February, 1991, 56.3 % of the over 23,400 coalition air strikes were against Iraqi ground forces in the KTO, 14.8% were against core strategic targets, 13.9 % supported air supremacy, and 15% were uncatagorized.⁴⁵ This effort achieved notable results. On the eve of the ground war, CENTAF and CENTCOM estimated 39% attrition of Iraqi tanks, 32% attrition of armored personnel carriers, and 47% attrition of artillery.⁴⁶

On 24 February CENTAF showed the overall Iraq KTO unit's BDA at 63% (66% for the Republican Guard) against an ARCENT assessment of 33% for front line units, and a MARCENT assessment of 59% BDA using their most conservative estimates.⁴⁷ After the war, the availability of other sources allowed a further

refinement of the Air Force's effectiveness during battlefield preparation. Accounting for the 800 fewer tanks than estimated in the Iraqi KTO at the start of the ground war, 40% of Iraqi tanks in the KTO were attrited overall with 20% in the Republican Guard.⁴⁸

While the exact attrition prior to the ground offensive is debatable, what is not is that coalition ground forces, led by the U.S. Army VII and XVIII Corps, found if not destroyed, all but demoralized and defeated Iraqi tactical units, and a significantly attrited Republican Guard, when they began their offensive. As Keaney and Cohen note, the true effects from the air attacks were more from a combination of targets attacked and the intensity of the attacks than specific targets destroyed. This included 24 hour a day preparation including B-52 strikes and the neutralization of fire trenches. "The pervasive impression left by the interrogation reports of prisoners was the sense of futility felt by the Iraqis after weeks of extensive bombing." This was reflected not only by the large number of desertions during the air campaign, but the large number which occurred at the first opportunity when the ground war started.⁴⁹

The subsequent ground offensive was equally successful, at least in part due to the uncontested command of the air enjoyed by coalition forces. The preceding suggests that the success enjoyed in the battlefield preparation phase was due less to a unity of effort in conducting joint fire support than a cooperative enemy and the availability of a tremendous number of air assets. As Lt Gen Horner noted,

We never had to make a decision as to whether the French brigade died or the Marine brigade died or the Saudi brigade died. If we had to make those kinds of decisions, it would have been a lot more difficult⁵⁰

Perhaps nothing more typified this lack of a unity of effort and a different vision of how to fight the battle than the debate over the FSCL-- a debate which continues today. Lt Gen Horner would not recognize the target category of battlefield air interdiction (BAI), a NATO concept designed to divide deep battle

target planning beyond the FSCL between the Army and Air Force. He felt it would complicate command and control without significant benefits.⁵¹ As Lt Gen Horner noted,

If it's inside the Fire Support Coordination Line, don't bother to tell me. If it's not, put it in the ATO. Get the air cover; get the ECM support; get the TOT; get the coordination; get all the benefits from being in the ATO⁵²

LTG Franks and LTG Luck saw BAI as joint doctrine and perceived that Lt Gen Horner was not allowing the corps adequate influence in shaping the battlefield prior to the ground offensive.⁵³ However, the preceding analysis done after the war indicates that, in large measure, this perception was not entirely correct.

Nevertheless, their perceptions at the time had significant implications for the ground offensive. One was that the corps tended to move the FSCL out significantly in front of the forward line of troops (FLOT), at one point over 100 kms. From the corps commanders' perspective this had two advantages. One, it reduced the danger of fratricide during fast moving offensive operations. Two, it gave the corps commanders more flexibility in employing their own assets without getting them into the ATO, specifically the AH-64 and ATACMS.⁵⁴ Interestingly, the first operation in support of the air campaign was the destruction of an early warning radar on 16 January by AH 64s. On the 17th of January, VII Corps conducted what was essentially a hip shoot mission with ATACMS against an Iraqi air defense sight.⁵⁵

As LTG Franks noted after the war,

Now, I didn't say, 'Now wait a minute. Submit your targeting nomination. And we'll put it through a targeting board, prioritize it, and so on.' We called the battery and said, 'pull off the road and shoot the mission,' and they shot it and destroyed the SA-2 site.⁵⁶

Issues surrounding the control of assets and the conduct of the deep fight were not limited to the Air Force. While ATACMs was occasionally used in support of Air Force interdiction efforts, the same could not be said for the Army's other deep strike asset, the AH-64. In one instance, Lt Gen Horner broached the subject of

incorporating AH-64s into the ATO to help reduce the Tawakalna division of the Republican Guard to a BCE representative. The Army Colonel said "Can't do that sir. Those helicopters are corps assets. They are a maneuver element. Using them that way is not in accordance with Army doctrine.". Horner just kind of looked at the Army Colonel and stated, "We don't use the D word around here." ⁵⁷

Disagreement surrounding the FSCL had several negative effects. Lt Gen Horner found it difficult to track the ground advance despite the use of preplanned FSCLs. Part of the problem stemmed from the fact that sometimes the Army's BCE representative in the TACC could not speak for both corps, so the JFACC and TACC did not always know locations for advancing army units. ⁵⁸ In another instance, Brig Gen Glosson argued that the Army's unwillingness to adjust the FSCL closer in allowed over 600 armored vehicles from the Hammurabi and Medina Republican Guards division to escape north out of the KTO since the Army did not close in time before the cease-fire. ⁵⁹

While the use of CAS was not without incident, it appeared this was not a major bone of contention. This occurred less from agreement than the simple fact that the sheer volume of CAS made available through the push CAS system, and the creation of kill boxes, made the disagreements somewhat of a moot point. In fact, given the moderate air defense threat, air superiority, and attacks from medium altitude, most CAS was used so deep that it more resembled BAI, if not in name, certainly in its effects. Carpenter suggests that up to one-third of the CAS which was potentially available to the army was not even used. ⁶⁰

ANALYSIS

Keaney and Cohen suggest that air operations in the Gulf War were evolutionary rather than revolutionary. While precision and laser guided munitions improved qualitatively, the authors note that a more difficult test than the Gulf War is needed to verify the supremacy of these as "a dominant weapon of war."⁶¹ That problems were worked out between the Army and Air Force is a testament to both the ARCENT commander, LTG Yeosock and the CENTAF commander and JFACC, Lt Gen Horner. He and Lt Gen Horner also got along well personally.⁶²

The primary reason for the lack of a unity of effort in the joint fire support plan stemmed from a failure by CENTCOM and the CINC to establish a consistent and coherent framework for the employment of the Army and Air Force in support of the ground offensive. The specification of the theater military objectives, the three centers of gravity and the sequential four phased campaign were in themselves, insufficient to ensure a unity of effort. What was missing was a clear articulation of the defeat mechanism for the Republican Guard and the role the Army and Air Force would play in it and the overall theater campaign. This was exacerbated by the segmented planning effort.

The ad hoc nature in which the Air Force planning cell, the CINC's land campaign planning cell, and the Third Army staff were assembled, could have resulted in nothing less than the ad hoc synchronization of the joint fire support plan. The compartmentalization of the planning effort between the Army and Air Force led to the development of two essentially independent subordinate campaigns, with the CENTCOM staff exercising little or no oversight. They became almost shift workers rather than integrators and a sounding board for the overall combined arms campaign, particularly the air effort.⁶³ That any integration occurred was largely a function of personalities, the availability of significant resources, and a cooperative enemy who allowed very talented commanders in both services to work through problems.

The physical separation of the planning cells was representative of a more important intellectual separation between the two services in how they viewed their roles in winning the war. The Army viewed the ground offensive as an absolute necessity-- the ultimate decisive operation of the war which only it could undertake to ensure success. This was defined by them and the CINC as the physical destruction of the Republican Guard and ejection of Iraqi forces from Kuwait. In the Army's view, every effort made by the Air Force during the preparation of the battlefield had to be linked to and measured against the degree to which it supported the ground commanders' future close fight. As Swain notes, the inability of Senior army commanders to grasp their relative position in the competition for air assets which were simultaneously striking tactical, operational and strategic targets, was a further source of frustration.⁶⁴

Even when additional air assets were apportioned to battlefield preparation, there was still a misunderstanding between the CINC and the senior ground commanders. They believed there was too much emphasis on the Republican Guard, and too little on the first and second echelon divisions, particularly in attacking tanks versus what they viewed as the greater threat to their ground offensive during the breach and penetration, enemy artillery. This very deliberate, sequential, attrition-based approach was reflected in how the preparation of the battlefield was measured, namely an aggregate 50% attrition of Iraqi forces in the KTO, as measured by tank, APC, and artillery losses.⁶⁵ The ground scheme, couched in terms of a successful 50% attrition of Iraqi divisions became, as Swain notes "an article of faith at all levels of the Desert Shield-Desert Storm command."⁶⁶ This focus on eaches-- individual pieces of equipment and damage expectancies, led to issues of how many versus what and why targets were chosen. This reinforced the concept of a deliberate and sequential operation aimed more at the enemy's physical destruction than a

simultaneous paralysis throughout his operational and strategic depths-- a concept reinforced by the CINC. This measure of effectiveness also frustrated the Air Force.

Some in the Air Force were of the opinion that the measure of effectiveness for successful battlefield preparation should have been based not on eaches but on, "... whether each corps could execute its planned scheme of maneuver with an acceptable number of friendly casualties." ⁶⁷ Not surprisingly, a ground commander would argue that this was self serving and easy for the Air Force to say when they were not the ones who might have to receive the casualties. This also reflected a different vision of the battlefield between the two services.

The Air Force brought a different view of the battlefield to the campaign involving how air assets ought to be used in joint fire support. The Air Force was intent to use the Gulf War as evidence that air alone could be decisive in a theater of war. To do this, however, the focus had to be on simultaneously targeting functions, more than targets, at strategic and operational depths in order to overwhelm the enemy and cripple his will rather than physically destroy him. The overkill against certain strategic targets such as the electric power grids, attests to the fact that while the Air Force may have gotten the concept right, it still had a way to go in execution. Nevertheless, the attrition-based measures of effectiveness highlighted the tension between the ground commanders and the Air Force. A related issue was the relative importance of targets.

Issues over what to target became confused with certain assumptions regarding the relative value of the targets. The Air Force's unique ability to strike operational and strategic targets encouraged them to give more value to these targets than tactical ones. This resulted in the apparent confusion of the level of the target with the effects it could achieve. The Air Force failed to see that a particular target or group of targets could have effects at more than one level.

As an example, the Army could argue that the air preparation effort of the breach sights had effects at all three levels. At the tactical level, it assisted the VII Corps in executing a rapid and successful breach with minimal casualties. This provided the operational benefit of allowing VII Corps to more rapidly place itself in the position to destroy the Republican Guard. This result, while not fully realized, significantly reduced Iraq's offensive capabilities, a theater strategic objective.

Army and Air Force disagreements over the relative value of targets and battlefield preparation reflected more than a different view of the battlefield; they also reflected a lack of trust. On the one hand the Air Force wanted to exert centralized control of its "limited" air assets even when they were supporting army operations. The Army did not trust the Air Force to shape the battlefield to its specifications without additional control over where they flew. Similarly, pushing out the FSCL allowed the Army to use its ATACMS and attack helicopters rather than putting them in an ATO and risking a perceived loss of control to the Air Force. This parochialism and lack of trust contributed to a lack of unity of effort. As a result, the truly decisive asymmetric effects which the Army and Air Force might have achieved, particularly against the Republican Guard, were not realized.

Many of the senior air and ground commanders shared some responsibility for the lack of a unity of effort in the joint fire support planning and execution. The CINC, however, as the JFC and de facto JFLCC must bear the brunt for not taking sufficient steps to ensure that unity of effort occurred. There was no unambiguous statement describing the complimentary roles and priorities between the Army and Air Force during the four phases of the campaign. This included a lack of specificity for the integration of the two services in the joint fire support for the ground offensive in general and the destruction of the Republican Guard in particular.

On the one hand, GEN Schwarzkopf appeared comfortable from the outset with the informal means of trusting his subordinate commanders to work out the

details on their own. On the other, during the entire air campaign, he still felt it necessary to personally get involved in coordinating the joint fire support effort by specifying which targets, divisions, and categories the Air Force should attack. Responsibility for target planning and implementation was left with the CENTAF TACC, a distinctly non-joint organization, dominated by air force personnel, particularly Black Hole planners who had developed the largely independent air campaign-- a campaign which the CINC had approved. No formal mechanism was established to facilitate this joint fire support dialogue, deconflict priorities, and present a coherent and integrated joint fire support concept. Had this been an air only operation, reliance on the CENTAF TACC would not have been a problem. However, as the ground campaign approached, and issues of shaping the battlefield arose, the need for some type of joint targeting mechanism became apparent.

Creating another ad hoc solution using the DCINC, was not fully adequate to the task. Lt Gen Horner is correct in his observation that LTG Waller's efforts were not a precursor for a joint targeting board. His scope was limited to targets in front of the FSCL, not the overall targeting and apportionment effort. As a result, two different targeting bodies with two different agendas, one led by LTG Waller, and one led by Brig Gen Glosson, continued throughout the war. This was complicated by the CINC's personal involvement and further frustrated the ability to achieve a unity of effort in joint fire support.

The preceding analysis is not intended to diminish the skills of the senior leaders involved. The accomplishments by all stand on their own merits. To provide qualifiers or excuses is at best presumptuous on the author's part. That notwithstanding, the fact is that this was the first modern major joint/combined operation as measured by both its scope and complexity, particularly regarding joint fire support issues. That the doctrinal debate surrounding joint fire support continues today attests to that fact.

IV DOCTRINE

The military has had a tradition of service separatism reinforced by certain intellectual constructs founded on each service's unique missions and experiences. To dismiss these arguments simply as capricious or self-serving is not particularly useful. The resultant doctrine in each service represents not simply a collection of tactics, techniques, and procedures addressing how they conduct war, but perhaps more importantly, how each service views its role in war.

Army, Air Force and joint doctrine emerging since the Gulf War will significantly effect how the U. S. armed forces conduct joint campaigns. Given the increasing importance placed on joint warfare, it is essential that the ongoing evolution in joint doctrine be disciplined and well reasoned. This is particularly true regarding the debate that has emerged concerning the prosecution of the deep battle and the planning and execution of joint fire support in support of the JFC's theater campaign.

Joint Pub 1-02 defines a campaign plan as, " A plan for a series of related military operations aimed to accomplish a common objective, normally within a given time and space." ⁶⁸ As Joint Pub 1 further notes, the intent of the campaign is to sequence and synchronize all available land, sea, air, special operations and space forces against the enemy's strategic and operational centers of gravity to achieve an overwhelming force by so effectively employing the joint forces that their total military impact exceeds the sum of the individual parts. ⁶⁹ Perhaps in recognition of the friction encountered in the Gulf War and the friction surrounding the Army and Air Force debate on deep battle, Joint Pub 1 notes, "The key to the most productive integration of these supporting capabilities and to the joint campaign as a whole, is attitude." ⁷⁰

In discussing the campaign plan, Joint Pub 3-0 notes that, while there may be certain phases of an operation or campaign , given certain circumstances, where any

dimension of combat power can be decisive; functional and service components *conduct subordinate and supporting operations, not independent campaigns.*⁷¹ These subordinate operations must be focused on clearly defined objectives through a unity of effort.

The 1993 version of FM 100-5 describes Army doctrine as "... inherently a joint doctrine ..." ⁷² It still characterizes operations as close, deep and rear but no longer sees itself as subordinate to the Air Force in conducting deep operations. As FM 100-5 notes, "Air interdiction can greatly benefit ongoing Army deep operations when synchronized with Army interdiction efforts." ⁷³ The manual continues to support the view that the Army is the nation's "proven decisive military force" through its ability to conduct "prompt and sustained land operations." ⁷⁴ In planning and conducting campaigns, it argues that the essence of operational art is to ensure there is a single unifying strategic concept which synchronizes all actions, avoids disconnected engagements, and avoids attrition.⁷⁵

Current Air Force doctrine reflects an attempt to rise above its perceived historically subordinate position to the Army. As AFM 1-1 notes, "Because that history (aerial warfare) comprises only eighty years, it is not surprising that traditional, two dimensional surface warfare concepts dominate military thinking."⁷⁶ The Air Force describes AFM 1-1 as, "... an airman's doctrine-written by air power scholars for use by air power practitioners."⁷⁷ It goes beyond the historical mission of supporting the Army and places increased emphasis on semi-independent air campaigns in support of the JFC. In the prosecution of the JFC's campaign, the manual notes that "... aerospace forces can make the most effective contribution when they are employed in parallel or relatively independent aerospace campaigns."⁷⁸

The Air Force views its roles as :1) aerospace control through offensive and defensive counter air missions, 2) force application through strategic attack missions, interdiction and close air support, followed by 3) force enhancement (airlift, aerial

refuel, surveillance and reconnaissance, etc.), and 4) force support which includes operability and defense of bases, logistics and combat support.⁷⁹

Joint Pub 3-0 emphasizes the importance of employing operational art and suggests several keys for the JFC in assuring the theater campaign is successfully planned and conducted. One of these is ensuring that synergy of the joint force is achieved through a "... shared understanding of the operational situation."⁸⁰ It also notes that depth and simultaneity, two other key aspects of operational art in a campaign, are at the heart of deep operations. The intent is to present the enemy simultaneously with more decisions than he can handle, by destroying or disrupting enemy key capabilities and functions throughout his entire depth to overwhelm him and cripple his will to resist.⁸¹

To gain leverage-- maintaining and exploiting advantages in combat power across all dimensions, the JFC establishes support relationships between and among the components to ensure a unity of effort.⁸² Joint Pub 3-0 notes, the size, shape and positioning of land and naval areas of operations is dictated by the JFC. Within these areas, the component commander is designated the supported commander and is responsible for synchronizing maneuver, fires, and interdiction, to include designating target priorities.⁸³ Joint Pub 3-0 further notes that since air assets are not constrained, *per se*, by theater boundaries and are used by all joint force components, the JFC must establish the requisite airspace control measures to deconflict multiple use of required airspace.⁸⁴

Joint Pub 3-0 designates the JFACC as the supported commander for the JFC's overall *air* (emphasis added) interdiction. Interdiction target priorities within the land or naval force boundaries are considered along with the theater wide interdiction effort. These are reflected in the JFC's apportionment decisions.⁸⁵ Joint Pub 3-0 notes that interdiction and maneuver are not independent but complimentary operations, aimed at achieving the campaign plan objectives. In resolving disputes,

emphasis is placed on "... carefully balancing doctrinal imperatives that may be in tension including the needs of the maneuver force and the undesirability of fragmenting air assets."⁸⁶ Joint Pub 3 further notes that the JFC must have a clear intent for theater level interdiction--the effort conducted relatively independently of surface force operations, with the details specified for the service components' contribution, in the campaign plan. All operations must be measured in terms of their success in achieving the theater objectives. In particular the manual notes that some operations may be dependent on a successful interdiction effort to isolate the battlefield or weaken the enemy force.⁸⁷

Joint Pub 3-0 emphasizes that the land commander must synchronize maneuver and interdiction in his designated area of operation, consistent with the JFC's priorities. To do this the land component commander should articulate to the supporting air or naval component commander how he sees interdiction facilitating his maneuver, then provide the supporting commander as much latitude as possible in conducting interdiction operations.⁸⁸

The Army believes that the land commander must have the ability to orchestrate all aspects of the land battle including not only his organic deep attack capabilities, but also the deep fires of other components out to his forward boundary.⁸⁹ Interestingly, perhaps in anticipation of the current debate on joint fire support, FM 100-5 notes that in achieving unity of effort, ownership of assets is less important than the application of their effects toward an intended purpose.⁹⁰

Doctrine for joint fire support is contained in the not yet approved Joint Pub 3-09, for which the Army is the executive agent. Joint fires consist of interdiction and its associated follow-on-force attack, joint fire support, and service fire support. Joint fire support encompasses CAS and other service unique fire support, such as tube artillery and MLRS, mortars, and even naval gunfire. Other joint force fires are considered joint fire support based on their intended effects, such as that portion of

the interdiction effort conducted to assist the surface force commander. While these fires have the potential for strategic, operational, and tactical effects, the two categories of joint fires which directly support the JFC's major operation or campaign are interdiction and joint fire support.⁹¹

In achieving unity of effort in joint fire support planning, Joint Pub 3-09 reinforces the fact that the JFC has the responsibility to ensure the appropriate command, control, and coordination occur between the service components.⁹² In an apparent effort to mirror the fire support system in the division and corps, Joint Pub 3-09 specifies that a joint force fires coordinator (JFFC) should be appointed (such as the JFC deputy, chief of staff, staff principle, or special staff officer).⁹³

The JFFC duties include overseeing the development of a joint fires plan which coincides with the development of the JFC's campaign plan, to include coordinating interdiction and joint fire support with other members of the joint staff, senior, and subordinate commands.⁹⁴ The targeting mechanism described in Joint Pub 3-09 mirrors the Army's decide, detect, deliver methodology, culminating with a joint target list including targets to be attacked, when to attack them, and desired effects.⁹⁵

While joint doctrine emphasizes planning and executing joint fires in depth, Joint Pub 3-09 places particular emphasis on supporting operations to engage the enemy forces decisively close in, defeat him, and prevent his accomplishing his mission. These operations are viewed as, "... the focal point of the JFC's campaign" and will use the majority of his combat power.⁹⁶ This view is reinforced in FM 100-7, The Army in Theater Operations, where the concept of operational fires is introduced.

FM 100-7 defines operational fires as "... the application of lethal and non-lethal firepower to achieve a decisive impact on the conduct of a campaign or major operation."⁹⁷ The manual notes that these fires focus on three major tasks:

facilitating maneuver, isolating the battlefield, and destroying key functions and facilities.⁹⁸ Thus, both FM 100-7 and Joint Pub 3-09 reinforce the primacy the Army has historically placed on the close battle as the decisive battle.

The Air Force's greatest disagreement with the Army concerns the relationship in which it views its roles of aerospace control and force application (strategic attack, interdiction, and close air support), and their integration into the joint targeting and joint fire support process. The order of both the roles and force application, is consistent with the Air Force's view of the relative importance of the missions. The first, aerospace control, reflects the primacy of air superiority. "Airmen maintain that a war is not winnable if the enemy has air superiority."⁹⁹

In prioritizing force application missions, the Air Force lists strategic attack first and notes that aerospace power is "at least conceptually" the only form of military power which can produce immediate strategic effects. However, AFM 1-1 acknowledges that airpower can also influence the surface battle before it begins through interdiction and can directly assist surface forces through CAS.¹⁰⁰

Interdiction is viewed in a broader context by the Air Force which notes that these operations should compliment surface operations and reinforce each other in support of the overall JFC's campaign plan. This is consistent with Joint Pub 3-0's view of the campaign interdiction effort.

The Air Force has criticized FM 100-5 for addressing inadequately the potentially decisive role airpower can have on land operations and the ability and desirability of conducting certain army operations to support the Air Force's future operations, thus making the Air Force the supported service.¹⁰¹ The Gulf War is cited as one example where ground forces, through their actions and positioning prior to the start of the ground offensive, supported the air interdiction effort by isolating and fixing the enemy. MacArthur's Southwest Pacific campaign where land bases

were seized to support General Kenney's air interdiction operations is cited as another example.¹⁰²

The Air Force views CAS as last in priority for force application. "Although close air support is the least efficient application of aerospace forces, at times, it may be the most critical by ensuring the success or survival of surface forces."¹⁰³

The FSCL continues to be a physical and intellectual representation of the overlapping spheres of influence between the Army and Air Force in fighting the deep battle. The Army believes the FSCL should not be a defining issue in the debate since the ground commander, as the supported commander within his designated area of operations, must synchronize all joint actions out to his forward boundary.¹⁰⁴ Again, not surprisingly, the Air Force has a different view.

The JFACC primer reflects the Air Force's position that synchronization of the theater interdiction effort should go to the commander with the preponderance of attack assets and command, control, communication, and intelligence capabilities to conduct them. The JFACC is the supported commander for air interdiction. The JFACC mission is not typically bound geographically. Synchronizing assets inside the FSCL is important to the ground commander and synchronizing air assets beyond the FSCL is important to the JFACC. Taking into account troop safety, the FSCL ought to be placed where the enemy is most at risk. This is where artillery and missiles stop being the greatest threat to the enemy and air attack becomes the greatest threat.¹⁰⁵

In what is viewed as a continuing trend for fast paced offensive operations, the Army envisions extending the FSCL out over 100 kms, as was done in the Gulf War.¹⁰⁶ The Air Force counterargument is that, as may have occurred with the Republican Guards at the end of the ground offensive, extending the FSCL too deep can create a sanctuary for the enemy since the Army, even with new munitions, may have insufficient assets to find and kill targets efficiently much beyond MLRS range, the AH-64 notwithstanding.

The Army argues that the Air Force effort of using the FSCL to define a break in responsibility for prosecuting the deep battle artificially segments the effort. This reduces the JFC's ability to achieve depth and simultaneity and flies in the face of TRADOC Pam 525-5's view of a more seamless future battlefield where increased emphasis is placed on the enemy rather than the geometry of the battlefield.¹⁰⁷ This is intended to get away from the Army's historical view of using the deep battle to shape the close fight, in favor of attacking the enemy simultaneously to stun and paralyze him, then rapidly defeat him.¹⁰⁸ This would also seem to address implicitly Air Force arguments that the Army has placed too much reliance on the primacy of the close fight.

The Roles and Missions Commissions debate on the prosecution of the deep battle, and the competition for limited resources, have served to heighten tension and confuse the issue. The Air Force wants the Army out of the deep battle. They note that systems such as ATACMS, "... are very high cost and totally disrupt the deep battle... (It) imposes a severe penalty on airpower on the battlefield due to its ballistic flight from the ground to space and back to the ground."¹⁰⁹ In response, Secretary of the Army Togo West recently derided the argument that, "the land battle can be partitioned, with each service fighting its particular segment", and noted that, "The Army will continue to enhance its capability through incorporation of integrated technology to strike the enemy at increasing depth."¹¹⁰

Interestingly, at the same time the Army is arguing to the Air Force that a further segmenting of the deep fire effort should be avoided, some in the Army appear to be doing just the opposite. III Corps has proposed a new fire support coordination measure, the battlefield coordination line (BCL) at about MLRS range, in addition to the FSCL. This fire support coordination measure is intended to coordinate the deep fight between the division and corps.¹¹¹ Combined Forces Command Korea has introduced the deep battle synchronization line (DBSL) in an attempt to define more

formally joint fire planning and execution responsibilities between the ground component commander and air component commander, reminiscent of NATO's reconnaissance interdiction planning line (RIPL) used in the mid 1980s.¹¹²

In recognition of the need for a more coherent joint targeting effort, Joint Pub 3-0 has placed particular emphasis on the need for the JFC to establish effective joint targeting procedures for planning, coordination, and deconfliction. The JFC may task an organization within his staff to accomplish broad targeting oversight functions, or he may delegate these responsibilities to a subordinate commander. Whoever the JFC designates must have the requisite C2, facilities, and joint planning expertise. This is typically done through the organization of some type of joint target coordination board (JTCB) to act as either an integrating or reviewing mechanism.¹¹³ Although somewhat different in structure and function, both CINCCENT, and CINC Combined Forces Korea, have adopted the concept of a JTCB (or in the case of Korea, combined target board) in their war plans.¹¹⁴

The Army has agreed with the need for another staff mechanism at the joint level with which to influence what it perceives as its inability to influence successfully the nomination and selection of targets beyond the FSCL in support of the ground commander's plan. The Air Force has a different view of the need for a JTCB.

The JFACC primer notes that from an airman's view, the maneuver commander continues to see air largely as another fire support asset-- a staff function performed in the headquarters. Airmen view targeting as a command function. It is how they orient their offensive operations to accomplish assigned objectives. Sometimes these objectives are targets supporting the maneuver commander. The Air Force argues that the JFACC, as a commander, is already in the position to prosecute targets for all components and he and his staff (which includes the BCE) know how to do this. "Targeting boards that constrict the operations of any commander or duplicate actions are a burden on the joint force."¹¹⁵

General Franks has put forth a different line of thought regarding the need for a JTCB, essentially arguing that the same force packaging the army uses in task organizing for specific missions ought to be broadened to include joint force packaging of not just land, but air and sea assets.¹¹⁶ While this would certainly regain some control for the Army over control and prosecution of fires in greater depth, it flies in the face of the Air Force's desire to control its limited assets centrally.

V. CONCLUSIONS

The intent of this monograph has been to glean insights regarding the planning and execution of joint fire support in the conduct of a theater campaign. It is not intended to be prescriptive, but rather to identify if the key principles which prevented unity of effort in joint fire support during the Gulf War are adequately addressed in current joint doctrine.

Given the unique circumstances in which the Gulf War occurred, it is arguable that the air campaign was revolutionary. On going force reductions in the Army and Air Force, potential limitations on air and ground assets based on competing demands, deployability issues, a non-cooperative enemy, poor weather, terrain restrictions, and time constraints, are a few of the factors which may prevent realization of the asymmetrical advantage enjoyed in the Gulf War in future U.S. joint operations. These include not only anticipated major regional conflicts but operations such as short notice, forced entry, contingency operations. It is, however, clear that a transformation is occurring in the relationship between the ground and air component in the manner in which joint fire support is done in a theater campaign.

The Gulf War succeeded largely through the sequential application of overwhelming materiel and firepower against an enemy, asymmetric, perhaps not in

size but clearly in capabilities. Following a massive build up, the enemy conceded air supremacy to the coalition and allowed himself to be subjected to a deliberate and sequential one month air campaign, prior to the successful execution of a ground offensive. Despite the success enjoyed by both, analysis following the war indicates a lack of a unity of effort in the planning and execution of joint fire support. This lack of a unity of effort could be disastrous against a more symmetric enemy or when conditions are less favorable for U. S. forces.

The Gulf War demonstrated that while unity of command is a necessary condition, it is not a sufficient one to ensure unity of effort. Not only was GEN Schwarzkopf the CINC, but also the JFC and the defacto JFLCC, however, even with all those titles, unity of effort did not occur in the planning and execution of joint fire support for the ground offensive.

Joint doctrine correctly asserts that there can be only one theater campaign. Describing subordinate operations, even with the best intentions, as subordinate campaigns lends itself to a potential divergence in interests. Just as there can be only one campaign, there can be only one campaign planning effort. While there may be a parallel effort among the components, the JFC and his staff must ensure their campaign plan drives the process.

Joint operations, which encompass joint fire support, are tremendously complex undertakings. They require extensive planning and coordination between and among both the components and the JFC's staff. It is one thing to use augmentees to reinforce the JFC's and component staffs; it is quite another to create ad hoc planning cells. Unless they are used judiciously, these ad hoc cells can lead to ad hoc solutions, inefficiencies, different agendas than those intended in the theater campaign, no less a divergence in purpose.

The result is a segmented plan and a lack of coordination among the components. The focal point for the plan must be at the JFC's headquarters. The

unity of effort for the joint fire support concept must derive, not only from the planning organization in the JFC's and component's headquarters, but also the theater campaign plan.

Joint Pub 3-0 and 3-09 note that once the identification of the theater campaign objectives and center(s) of gravity is done, the campaign plan must clearly establish the role joint fire support plays in attaining these. This must include the appropriate arrangement of Army and Air Force major operations, as a combination of simultaneous and sequential actions, to attain the desired end state, typically articulated as some type of center of gravity defeat mechanism. At the heart of this is the notion of attaining synergy through the application of force simultaneously, throughout the opponent's depth, to overwhelm his decision making cycle-- the essence of deep operations and operational art. However, again as demonstrated in the Gulf War, the notions of depth and simultaneity are not understood consistently by the Army and Air Force. The concept for joint fire support must also include an unambiguous description of the relative priority and importance the Army and Air Force play and when supporting relationships and apportionment decisions change as part of the means of defeating or destroying the enemy's center(s) of gravity. Joint Pub 3-0 correctly points out that the JFC must dictate what this is. When issues surrounding authority, coordination and doctrine arise, the JFC must ensure they are addressed during the planning process, not trust his component commanders to work it out on their own.

The type of campaign or major operation is a key determining factor in defining the role joint fire support plays in defeating the enemy, which targets and/or functions must be struck, and in what order. The value of the targets or functions that are struck must be viewed in the context of their effect on the success of the campaign, not the level of the targets (i.e. tactical, operational, and strategic). There are times, such as forced entry operations, when the ultimate success of the campaign

may be measured by the initial success of the close battle. There are, however, other instances when air may not only be capable of, but more importantly, ought to provide the decisive role in achieving the theater campaign objectives. In such instances, the Army's primary role may very well be supporting the prosecution of the Air Force's deep battle operations. Supporting and supported relationships must stop being viewed as issues of manhood. One does not connote superiority over the other. They are based on service unique capabilities and must be viewed in the context of the JFC's campaign plan.

The Air Force may be correct in asserting that Army and perhaps even joint doctrine place too much emphasis on the two dimensional battlefield and the primacy of the close fight. In this regard, TRADOC Pam 525-5 may be taking a step in the right direction by attempting to focus more on the enemy and less on battlefield geometry. By the same token, the overly emphasized notion that air is typically a limited asset, the Gulf War notwithstanding, and therefore requires centralized control, and efficiency in use, needs to be reviewed. Efficiency may not be a correct measure of effectiveness in the manner in which air is apportioned in support of ground operations. As Winnefeld notes in his book Command and Control of Joint Air Operations: Some Lessons Learned from Four Case Studies of an Enduring Issue, the prudent JFC thinks ahead as to how he'll make the decision and factors in considerations of when efficiency must be sacrificed for expediency when U. S. forces are involved, or when scarcity of tactical air assets is the driving factors.¹¹⁷ This gets to the issues of determining not only what targets to hit, but more important, how to assess the effectiveness of the joint fire support operations.

As Keaney notes, "... the problems of assessing (not measuring) operational and strategic effectiveness remain as difficult, controversial, and afflicted by subjectivity as they have in wars of the past."¹¹⁸ In this regard, the emphasis now being placed by both service and joint doctrine in targeting functions rather than

individual targets is the right approach. Measures of success and effectiveness for joint fire support need to be more carefully thought out, and as a rule, ought to avoid emphasis on eaches. There may be joint operations when circumstances dictate or allow sufficient time and resources for a preparation of the battlefield by air and surface delivered joint fires. The danger, as shown in the Gulf War, is that this will lead not only to a physical, but psychological campaign of attrition, as opposed to the recent doctrinal approach, reinforced in service and joint doctrine, of using depth and simultaneity to paralyze the enemy and defeat his will. The attendant sequential and attritional approach against a more symmetric enemy may not yield the quick and decisive victories articulated in our doctrine and increasingly demanded of our armed forces by the nation's leaders. The preceding discussion has focused largely on planning considerations necessary to ensure unity of effort in the development of the campaign's joint fire support plan. No less important is the ability to ensure a unity of effort in the execution of the joint fire support plan.

Joint doctrine correctly points out the need for some type of joint target coordination mechanism. This is needed, not only for operational necessities, but also to diffuse service unique operational concerns. The composition of this board must be joint, not simply in principle, but in fact. Unity of effort in the targeting process cannot occur unless consistency in thought, applied to the role of the Army and Air Force in defeating the enemy center(s) of gravity, is applied as well to the execution of the targeting process. A joint target coordination board does this by applying the same rigor to the application of joint fires that occurred in their planning. The two unified commands currently charged with executing the nation's two major regional contingencies, CENTCOM and Combined Forces Korea, have recognized the necessity for such a structure and have formally adopted one in their war plans.

Creating some type of joint targeting board has several advantages. It frees the JFC from the day to day details of ensuring his joint fires are consistent with his

intent. Perhaps more importantly, it gives the perception to all in the JFC's force that the targeting effort is truly joint and at this level, perception frequently equals reality. The Air Force continues to argue that people, not additional structures solve problems, and the current staff available to the JFACC can handle the joint targeting requirement. While this may be true in principle, it is not true in fact. Personalities matter; all military personnel are a product of their service upbringing. Unless a targeting board which is truly joint in nature is created, there will be a perception of service parochialism in the prosecution of the joint fire support plan.

Creating joint force packages for deep strike operations similar to how the Army creates combined arms team is intellectually appealing as well, however, it also has practical applications. The largest is one of trust. Neither service feels comfortable now, nor is likely to feel so in the future, turning over control of deep fire capabilities, such as the AH-64 and ATACMS (in the case of the Army), or limited fixed wing deep strike platforms (in the case of the Air Force), to the other service. As a result, the potentially greater simultaneous and synergistic deep battle effects that might accrue with a deep battle joint force packaging concept may not be realized. A properly integrated and functioning joint targeting board will not only reduce this suboptimization, but also enhance the interdiction effort in support of both ground operations, if they occur, and the theater wide interdiction effort as well.

The division of responsibilities in the joint battlefield architecture is another case in point. The current functional compartmentalization of the deep battlefield using the FSCL, as described in current joint doctrine, is a necessity now and is likely to remain one in the near future. Visionary ideas espoused in TRADOC 525-5 suggest future information warfare technologies will allow a common seamless view of the battlefield by all services. This may eliminate the need for such battlefield architectures as FSCLs, DBCLs and other service and joint fire support coordination measures.

A seamless view of the joint battlefield may be a useful intellectual construct for the future, however, there are practical limitations for its incorporation into today's joint fire support system. At the present time these technologies have not fully matured. Additionally, neither the Army nor the Air Force are intellectually capable, either internally or in a joint environment, of commanding and controlling the increasingly complex joint fire support environment without various restrictive and permissive fire support coordination measures. These, as well as other geographic lines and boundaries, are needed to delineate regions and areas of responsibilities between and among services and functions. A proper JFC focused planning effort, sufficient coordination between the services, and the requisite supervision by a functioning joint target coordination board can still place the requisite emphasis of the joint fire support effort on the enemy versus battlefield geometry. The delineation of areas of responsibilities and the associated protocols for planning and coordinating deep fires between the Army and Air Force that are contained in current joint doctrine do this and are about right.

Joint doctrine is the final area needed to ensure unity of effort between the Army and Air Force in the planning and execution of joint fire support. Joint Pub 3-0 contains a consistent and coherent framework around which to build both a campaign and the supporting joint fire support plan. While it may not ideally suit each service's needs, it is currently about right and will continue to evolve into better joint doctrine in the future. It must be followed by the JFC and his component commanders. It allows sufficient latitude for the JFC to accommodate any unique theater requirements. Unfortunately, its validity is being distorted by issues which focus on *who* versus *how* joint fire support occurs.

Current deep battle debates between the Army and Air Force have tended to be based less on their intellectual consistency with joint doctrine and more on using it selectively to advocate a service's particular position or the adoption of a particular

weapon system. Some of this parochialism is not only inevitable but perhaps even healthy. However, it must not prevent those charged with planning a campaign or major operation from ensuring there is a unity of effort in joint fire support. Equally important, this debate must not allow those charged with the development of supporting joint and service publications from remaining objective as well.

We are in an interregnum period in which the relationship between firepower and maneuver in particular, and the role of ground and air forces in general are evolving. Joint doctrine provides the best framework around which to ensure this evolution is consistent, well reasoned and serves the best interests of our nation's armed forces.

GLOSSARY

Part I--Abbreviations and Acronyms

ARCENT- U. S. Army component, U. S. Central Command (Third Army)

AOR- area of responsibility (see glossary part II)

ATACMS- Army tactical missiles

ATO- air tasking order

BCE- battlefield coordination element

BAI- battlefield air interdiction (see glossary Part II)

BCL- battlefield coordination line (see glossary part II)

BDA- battle damage assessment (see glossary part II)

CAS- close air support (see glossary part II)

CENTAF- U. S. Air Force component, U. S. Central Command (9th AF)

CINC- commander in chief (of a combatant command)

DBSL-deep battle synchronization line (see glossary part II)

DIA- Defense Intelligence Agency

FLOT- forward line of troops

FSCL- fire support coordination line (see glossary part II)

JFACC- joint force air component commander (see glossary part II)

JFC- joint force commander (see glossary part II)

JFFC- joint force fire coordinator

JFLCC- joint force land component commander (see glossary part II)

JFMCC- joint force maritime component commander

JFSOCC- joint force special operations component commander

JOA- joint operations area (see glossary part II)

JSTARS- joint surveillance target attack radar system

JTCB- joint target coordination board

JTF- joint task force (see glossary part II)

KTO- Kuwait theater of operations

MARCENT- U. S. Marine Corps component, U. S. Central Command

NATO- North Atlantic Treaty Organization

NAVCENT- U. S. Navy component, U. S. Central Command

SOCCENT- Special Operations component, U. S. Central Command

USCENTCOM- U. S. Central Command

USCINCCENT- U. S. Commander in Chief, U. S. Central Command

Part II- Terms and Definitions

Aerospace Control Operations- (DOD) The employment of air forces, supported by ground and naval forces, as appropriate, to achieve military objectives in vital aerospace areas. Such operations include destruction of enemy aerospace and surface-to-surface forces, interdiction of enemy aerospace operations, protection of vital air lines of communication, and the establishment of local military superiority in areas of air operations. (Joint Pub 1-02)

Air Interdiction- (DOD, NATO) Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (Joint Pub 1-02)

Allocation- (DOD) The translation of the apportionment into total numbers of sorties by aircraft type available for each operation/task. (Joint Pub 1-02)

Apportionment- (DOD, NATO) The determination and assignment of the total expected effort by percentage and/or by priority that should be devoted to the various air operations and/or geographic areas for a given period of time. (Joint Pub 1-02)

Area of Operations- (DOD, NATO) That portion of an area of war necessary for military operations and for the administration of such operations. (Joint Pub 1-02)

Area of Responsibility- (DOD, NATO) 1. A defined area of land in which responsibility is specifically assigned to the commander of the area for the development and maintenance of installations, control of movement and the conduct of tactical operations involving troops under his control along with parallel authority to exercise these functions. 2. In naval usage, a predefined area of enemy terrain for which supporting ships are responsible for covering by fire on known targets or targets of opportunity and by observation. (Joint Pub 1-02)

Attrition- (DOD, NATO) The reduction of the effectiveness of a force caused by loss of personnel and materiel. (Joint Pub 1-02)

Battle Damage Assessment- The timely and accurate estimate of damage resulting from the application of military force, either lethal or nonlethal, against a predetermined objective. Battle damage assessment can be applied to the employment of all types of weapon systems (air, ground, naval, and special forces weapon systems) throughout the range of military operations. Battle damage assessment is primarily an intelligence responsibility with required inputs and coordination from the operators. Battle damage assessment is composed of physical damage assessment, functional damage assessment, and target damage assessment. (Joint Pub 3-0, proposed for inclusion in next edition of Joint Pub 1-02)

Battlefield Air Interdiction- Air Interdiction (AI) attacks against hostile ground targets which are not in close proximity to friendly forces but are in or sufficiently near the area of operations of friendly forces and directly affect near term operations or the scheme of maneuver of friendly forces. BAI is a subset of air interdiction. (Joint Pub 3-09 final draft)

Battlefield Coordination Line- (III Corps) This is a line at about MLRS range--in conjunction with a deep fire support coordination line (perhaps 150 km or beyond) to define and coordinate the division of labor between corps deep-fighting capabilities (such as AH-64 and ATACMS) and the division close-warfighting focus. (Implications paper on Joint Pub 3-09, pp. 8-9) Author notes that CG TRADOC has discouraged proliferation of new, nondoctrinal terms

Boundary- (DOD, NATO) In land warfare, a line by which areas of responsibility between adjacent units/formations are defined. (Joint Pub 1-02)

Campaign Plan- (DOD) A plan for a series of related military operations aimed to achieve strategic and operational objectives within a given time and space. (Joint Pub 3-0, approved for inclusion in the next edition of Joint Pub 1-02)

Centers of Gravity- (DOD) Those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight. (Joint Pub 3-0, approved for inclusion in the next edition of Joint Pub 1-02)

Close Air Support- (DOD,) Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. (Joint Pub 3-0, approved for inclusion in the next edition of Joint Pub 1-02)

Counter Air- (DOD) A United States Air Force term for air operations conducted to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy forces. Both air offensive and air defensive actions are involved. The former range throughout enemy territory and are generally conducted at the initiative of the friendly forces. The latter are conducted near to or over friendly territory and are generally reactive to the initiative of the enemy air forces. (Joint Pub 1-02)

Deep Battle Synchronization Line- (Combined Forces Korea) The deep battle synchronization line is the forward boundary of the Commander, ground component command area of operation. The Commander, ground component command is the supported commander for the operations short of the deep battle synchronization line (forward boundary); the Commander, air component command is the supported commander for operations beyond the deep battle synchronization line. The Commander, air component command is responsible for synchronizing and integrating

air operations and fires beyond the deep battle synchronization line (forward boundary). He is also responsible for coordinating all fires between the fire support coordination line and the deep battle synchronization line. (Deep Operations Primer-Korea)

Doctrine- (DOD) Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application. (Joint Pub 1-02)

Fire Support Coordination Measure- (DOD,) A measure employed by land or amphibious commanders to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. (Joint Pub 3-0, approved for inclusion in the next edition of Joint Pub 1-02)

Fire Support Coordination Line- (DOD, NATO) A line established by the appropriate ground commander to insure coordination of fire not under his control but which may affect current tactical operations. The fire support coordination line is used to coordinate fires of air, ground or sea weapons systems using any type of ammunition against surface targets. The fire support coordination line should follow well defined terrain features. The establishment of the fire support coordination line must be coordinated with the appropriate tactical air commander and other supporting elements. Supporting elements may attack targets forward of the fire support coordination line, without prior coordination with the ground force commander, provided the attack will not produce adverse surface affects on, or to the rear of, the line. Attacks against surface targets behind this line must be coordinated with the appropriate ground force commander. (Joint Pub 1-02)

Interdiction- (DOD) An action to divert, disrupt, delay, or destroy the enemy's surface or subsurface military potential before it can be used effectively against friendly forces. (Joint Pub 3-0, proposed for inclusion in the next edition of Joint Pub 1-02 by Joint Pub 3-03)

Joint Force Air Component Commander- (DOD) The joint force air component commander derives his authority from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among his subordinate commanders, redirect and organize his forces to ensure unity of effort in the accomplishment of his overall mission. The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation and tasking based on the joint force commander's apportionment decision). Using the joint force commander's guidance and authority, and in coordination with other Service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to

the joint force commander apportionment of air sorties to various missions or geographic areas. (Joint Pub 1-02)

Joint Force Commander- (DOD) A general term applied to a commander authorized to exercise combatant command (command authority) or operational control over a joint force. (Joint Pub 1-02)

Joint Force Land Component Commander- (DOD) The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on The proper employment of land forces, planning and coordinating land operations, or accomplishing such operational missions as may be assigned. The Joint force land component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. The joint force land component commander will normally be the commander with the preponderance of land forces and the requisite command and control capabilities. (Joint Pub 1-02)

Joint Task Force- (DOD) A force composed of assigned or attached elements of the Army, the Navy or the Marine Corps, and the Air Force, or two or more of these services, which is constituted and so designated by the Secretary of Defense or by the commander of a unified command, a specified command, or an existing joint task force. (Joint Pub 1-02)

Maneuver- (DOD, NATO) 4. Employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission. (Joint Pub 1-02)

Operational Level of War- (DOD) The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or areas of operations. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and applying resources to bring about and sustain these events. These activities imply a broader dimension of time or space than do tactics; they ensure the logistics and administrative support of tactical forces, and provide the means by which tactical successes are exploited to achieve strategic objectives. (Joint Pub 1-02)

Service Component Command- (DOD) A command consisting of the Service component commander and all those individuals, units, detachments, organizations and installations under the command that have been assigned to the unified command. (Joint Pub 1-02)

Strategic Level of War- (DOD) The level of war at which a nation, often as a member of a group of nations, determines national or multinational (alliance or

coalition) strategic security objectives and guidance, and develops and uses national resources to accomplish those objectives. Activities at this level establish national and multinational military objectives; sequence initiatives; define limits and assess risks for the use of military and other instruments of national power; develop global or theater war plans to achieve those objectives and provide military forces and other capabilities in accordance with strategic plans. (Joint Pub 3-0, approved for inclusion in the next edition of Joint Pub 1-02)

Tactical Air Control Center- (DOD, NATO) The principal air operations installation (land or ship based) from which all aircraft and air warning functions of tactical air operations are controlled. (Joint Pub 1-02)

Tactical Level of War- (DOD) The level of war at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces. Activities at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve combat objectives. (Joint Pub 1-02)

Unified Command- (DOD) A command with a broad continuing mission under a single commander and composed of significant assigned components of two or more Services, and which is established and so designated by the president, through the Secretary of Defense with the advice and assistance of the Joint Chiefs of Staff, or, when so authorized by the Joint Chiefs of Staff, by a commander of an existing unified command established by the President. (Joint Pub 1-02)

ENDNOTES

1. U. S. Joint Chiefs of Staff, Joint Warfare of the US Armed Forces, Joint Pub 1, (Washington, D. C.: U. S. Government Printing Office, 1991), p. 45.
2. U. S. Department of the Army, FORCE XXI OPERATIONS, A Concept for the Evolution of Full-Dimensional Operations for the Strategic Army of the Early Twenty-First Century, TRADOC Pam 525-5, (Headquarters, U. S. Army Training and Doctrine Command, Fort Monroe, Virginia, 1994), p. 3-11.
3. U. S. Joint Chiefs of Staff, Doctrine for Joint Operations, Joint Pub 3, (Washington, D. C.: U. S. Government Printing Office, 1993), p. IV-24.
4. U. S. Department of the Army, White Paper (Final Draft), Subject: Joint Fire Support and Interdiction between the Fire Support Coordination Line and Forward Boundary, (Headquarters, U. S. Army Field Artillery School, Fort Sill, Oklahoma, 1994), p. II-3.
5. John L. Romjue, From Active Defense to AIRLAND Battle: The Development of Army Doctrine 1973-1982, TRADOC Historical Monograph Series, (Headquarters, U. S. Army Training and Doctrine Command, Fort Monroe, Virginia, 1984).
6. John A. Warden III., The Air Campaign Planning for Combat, (Washington, D. C.: National Defense University Press, 1988), p. 169.
7. Thomas A. Keaney and Eliot A. Cohen, Gulf War Air Power Survey, (Washington, D. C.: U. S. Government Printing Office, 1993), Summary , pp. 36-37. Hereafter referred to as GWAPS.
8. (S) U. S. CENTCOM OPORD 1002-90, 10 Aug 90. This was consistant with the JFACC description contained in Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms, 1989.
9. Keaney and Cohen, GWAPS Summary , p. 38.
10. Keaney and Cohen, GWAPS Vol I, p. 171. The emphasis was Brig Gen Glosson's.
11. Telephone interview with Lt Gen Horner by Maj P Mason Carpenter, USAF, 27 Dec 1993. This is found in Maj Carpenter's JOINT OPERATIONS IN THE GULF WAR: An ALLISON ANALYSIS, a Thesis presented to the School of Advanced Airpower Studies (Air University, Maxwell AFB, Alabama, 1994).

12. Keaney and Cohen, GWAPS Summary , p. 27. This was taken from President Bush's televised speech to the nation on 8 Aug, 1990. It served as essentially, the only source from which CENTCOM would develop its theater military objectives.
13. Ibid., pp. 39-40.
14. This description of the ground campaign planning process is based on the author's personal experience. He, along with (at the time) Maj Bill Pennypacker, Maj Dan Roh, and LTC Joe Purvis were the four SAMS graduates who assisted in the development of the ground offensive. While the 50% aggregate attrition was originally arrived at by the CENTCOM staff based on a one corps attack, it remained throughout the planning process for a two corps offensive since the estimated size of Iraqi forces in the KTO grew almost twofold from September 90 to January 91.
15. Richard M. Swain, COL (Ret) U. S. Army, "Lucky War" Third Army in Desert Storm, (U. S. Army Command and General Staff College Press, Fort Leavenworth, Kansas, 1994), pp. 83, 90. This splendidly written book, at once lucid and comprehensive, was written by COL Swain while he was assigned to the Third Army staff as the theater army historian.
16. Author's personal experience. This parallel and somewhat disjointed planning effort was also complicated by the fact that the four SAMS graduates found themselves from week to week working for one or more of the following: the CINC personally, the J-5, the J-5 director of war plans, the CENTCOM CoS, LTG Yeosock, and BG Arnold. Unfortunately, many books since written on the planning effort for the ground campaign, have placed too much emphasis on the four SAMS graduates and not enough on the CENTCOM J-5 personnel. Some very talented officers from all services did a tremendous job under very difficult circumstances.
17. Author's personal observations.
18. Swain, p. 182.
19. CDR Daniel J. Muir, USN, "A View from the Black Hole", Naval Institute Proceedings, (Oct 91), pp. 85-86. The author was an augmentee to the US Central Navy and Central Air Force commands in Riyadh, Saudi Arabia during the Gulf War. This article contains a more detailed description of the composition and internal workings of the Black Hole targeting effort, particularly the intelligence operations.
20. Ibid., p. 86.
21. Col Richard B. Lewis, USAF, "JFACC, Problems Associated with Battlefield Preparation in Desert Storm", Airpower Journal, (Spring 94), p. 5. The author was a part of the CENTAF targeting cell during the Gulf War.

22. Department of Defense, Conduct of the Persian Gulf Conflict- Final Report to Congress Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991 (Public Law 102-25), (Washington, D. C. : U. S. Government Printing Office, 1993), pp. 124, 127.
23. Keaney and Cohen, GWAPS Summary , Chapter 4, "What did the Air Campaign Accomplish?"
24. Ibid., p. 83. The authors note that coalition aircrews reported destroying around 80 mobile launchers and special operations forces claimed another "score or so". However, the authors note that most reports stemmed from attacks against objects in the Scud launch area and many now appear to have been decoys. The fact is, the actual destruction of Scuds remains impossible to determine.
25. Ibid., pp. 64-90.
26. (S) Interview by Perry Jamison, Richard Davis, and Barry Barlow, Air Force History Program, with Lt Gen Horner, 4 Mar, 92, as noted in GWAPS Summary, p. 95.
27. Keaney and Cohen, GWAPS Summary, p. 99.
28. Lewis, pp. 8-9.
29. Ibid., pp. 11-12.
30. (S) Msg, USCINCCENT to COMUSCENTAF, subj: Air Apportionment planning, 311650Z Jan 1991, in TACC Current Ops Log, as noted in Keaney and Cohen's GWAPS Summary, p. 154.
31. Swain, p. 185.
32. Ibid., p. 185.
33. Lewis, p. 13. Moreover, Army counterfire systems were an order of magnitude superior to the Iraqi's ability to evade them.
34. Carpenter interview with LTG Franks, 23 Mar 94 at Fort Monroe Virginia, as noted in his thesis.
35. Swain, p. 186, as noted in HQ, ARCENT, Deep Operations and Targeting Cell, After-Action Report, n.d. Swain also cites an interview with LTC Bart Engram, ARCENT G3 Deep Operations Cell, 27 Mar 91 as another source for Army-Air Force coordination issues. Interview is part of Swain's paper located at CGSC library, Fort Leavenworth, Kansas.

36. Ibid., p. 189.
37. John Connolly interview with LTG Waller, 3 Jun 91 at US Army War College, Carlisle Pennsylvania, as noted in Carpenter's thesis.
38. Lewis, pp. 6-7.
39. Carpenter telephone interview with Lt Gen Horner, 27 Dec 93, as cited in his thesis.
40. Lewis, pp. 18-19. This is based on an 8th Air Support Operations Group Paper, 29 October, 1991. Lewis' primary source is Maj Irving L. Halter, Jr., USAF, a VII Corps air liaison officer during the Gulf War.
41. Lewis, p. 17-18.
42. LTG Yeosock, talk with Flag Officer Joint Targeting Course, Maxwell, AL, Mar 94, as noted in Carpenter's thesis.
43. Lewis, p. 19.
44. Ibid., p. 19.
45. Keaney and Cohen, GWAPS Summary, p. 65.
46. (S) USCINCCENT Situation Report, dtd 232115Z Feb 1991, as noted in GWAPS Summary, p. 105.
47. Lewis, pp. 12-13.
48. Thomas A. Keaney, "Surveying Gulf War Airpower", JFQ, (Autumn 93), p. 34.
49. Keaney and Cohen, GWAPS Summary, pp. 107-108.
50. Jamison, Davis, and Barlow interview with Lt Gen Horner 4 Mar 92 as noted in GWAPS, Vol I, p. 57.
51. Connolly interview with LTG Waller, U. S. Army War College, Carlisle PA, 3 Jun 91 as noted in Carpenter's thesis.
52. Jamison, Davis, and Barlow interview with Lt Gen Horner 4 Mar 92, as noted in Keaney and Cohen's, GWAPS, Vol II, p. 64.

53. Bill Mendel, Doug Craft, Bill Barry, and Rick Swain interview with LTG Franks, 31 Oct 91 at Carlisle Barracks, PA. as noted in Carpenter's thesis.
54. Carpenter telephone interview with Lt Gen Horner, 27 Dec 93, as noted in his thesis.
55. Swain, p. 176.
56. Carpenter interview with GEN Franks, 23 Mar 94, as noted in his thesis.
57. Carpenter interview with Lt Col David Deptula, 21 Dec, 93. Pentagon, Washington, D. C. Lt Col Deptula was one of the key members of the Black Hole.
58. Briefing by Lt Col Perozzi, CENTAF Staff, 9 Mar 92. Shaw, AFB, SC as noted in GWAPS, Vol I.
59. Carpenter interview with Maj Gen Glosson, 21 Dec, 93. Pentagon, Washington, D. C. as noted in his thesis.
60. Carpenter, pp. 100-101.
61. Keaney and Cohen, GWAPS Summary, p. 245.
62. Swain, p. 189.
63. Maj Anne D. Leary interview with LTC Royce Crane, CENTCOM J-3 Air, 14 Apr 92, as noted in Keaney and Cohen's GWAPS, Vol I, p. 63.
64. Swain, p. 182.
65. It is interesting to note that a 50% attrition is usually equated to defeating the enemy and at 30% combat effectiveness, the enemy is normally considered to have been destroyed or rendered combat ineffective.
66. Swain, p. 78.
67. Lewis, p. 20.
68. U. S. Joint Chiefs of Staff, Joint Pub 1-02, DOD Dictionary of Military and Associated Terms, (Washington, D. C.: U. S. Government Printing Office, 1989), p. 60.
69. Joitn Pub 1, pp. 46-47.
70. Ibid., p. 61.

71. Joint Pub 3-0, p. II-6.
72. U. S. Department of the Army, FM 100-5, Operations, (Washington, D. C.: U. S. Government Printing Office, 1993), p. 1-1.
73. Ibid., p. 2-19.
74. Ibid., p. 1-4.
75. Ibid., pp. 6-2, 3.
76. U. S. Department of the Air Force, AFM 1-1, Basic Aerospace Doctrine of the United States Air Force, (Washington, D. C.: U. S. Government Printing Office, 1992), Vol I, p. 15.
77. Ibid., p. vii.
78. ibid., p. 9.
79. Ibid., pp. 6-7.
80. Joint Pub 3-0, p. III-14.
81. Ibid., p. III-14.
82. Ibid., p. III-18.
83. Ibid., p. IV-22.
84. Ibid., p. III-48.
85. Ibid., p. IV-23.
86. Ibid., p. IV-19.
87. Ibid., pp. IV 20-22.
88. Ibid., pp. IV 20-22.
89. U. S. Department of the Army, COL Edney, DAMO-FDG and MG Anderson, DAMO-FD, U. S. Army briefing to the Roles and Missions Commission on the Deep Battle, Dec 94, slide 3.
90. FM 100-5, p. 6-13.

91. U. S. Joint Chiefs of Staff, Joint Pub 3-09 (Final Draft), Doctrine for Joint Fire Support, (Washington, D. C.: U. S. Government Printing Office), 1993, pp. I 1-2.

92. Ibid., p. I-16.

93. The author of Joint Pub 3-09 in TRADOC Joint Doctrine indicated to LTC Eckert during a telephone interview on 15 February, 95 that the Army was beginning to move away from its historical use of a fires model in how it viewed joint fire support. This may be in response to Air Force criticisms that they are more than simply fire support for the Army.

94. Joint Pub 3-09, p. II 2-3.

95. Ibid., pp. III 5-6.

96. Ibid., p. I-9.

97. U. S. Department of the Army, FM 100-7 (draft), The Army in Theater Operations, (Washington, D. C.: U. S. Government printing Office, 1990), p. 2-40. It is interesting to note that in choosing the term "operational" fires, the Army may also be guilty of confusing the level of war with the effects they are designed to achieve.

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99. U. S. Department of the Air Force, JFACC Primer (Second Edition), (Washington, D. C.: U. S. Government Printing Office, 1994), p. 23.

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101. Lt Col Price T. Bingham, USAF, "Airpower in Desert Storm and the Need for Doctrinal Change", Airpower Journal, (Winter 1991), p. 36.

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104. DAMO-FD Roles and Missions Commission brief, slides 13-18.

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